Silurian palynology and correlation of inliers in the Midland Valley of Scotland

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Silurian successions in the Midland Valley of Scotland record the infilling of a Llandovery-Wenlock basin, but differences of detail between Silurian inliers suggest the presence of local sub-basins with different histories of sedimentation. Unravelling the sedimentary and tectonic history of the Midland Valley depends on correlation between the inliers. Llandovery marine facies have yielded graptolite and shelly faunas, and both have been used for correlation, but marine palynomorphs (acritarchs, chitinozoa) are also present. In the North Esk Inlier, the lowest palynological assemblage, from the late Llandovery Reservoir Formation, is reasonably diverse, but dominated by sphaeromorph acritarchs and species of *Tylotopalla* (*T. deerlijkianum*, *T. astrifera*). The assemblage suggests a comparatively shallow marine environment, consistent with interpretation of the graptolite fauna. The sphaeromorph-*Tylotopalla* assemblage also occurs in the Drumyork Flags Formation of the Girvan Main Inlier, at about the same chronostratigraphic level. Overlying successions in the North Esk and Girvan Main inliers have yielded marine assemblages of lower diversity. Assemblages from the highest formation in the North Esk Inlier, the non-marine Henshaw Formation of Wenlock age, comprise mainly cryptospores and simple trilete spores (*Ambitisporites*), in contrast to the marginal marine assemblage from the Straiton Grits Formation of Wenlock age at Girvan.